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LXXIX. *An Account of a Work, intituled, Jacobi Christiani Schaeffer icones et descriptio Fungorum quorundam singularium et memorabilium; simul Fungorum Bavarix icones nativis coloribus expressæ editioni, jam paratæ, propediem evulgandæ, denunciantur; by Mr. William Hudson, F. R. S.*

Read March 25, 1762. **T**HIS treatise consists of sixteen pages, and is divided into two parts; the first contains the figures and descriptions of some singular and remarkable Fungi; the second contains proposals for publishing the figures of all the Fungi growing in Bavaria, coloured after nature. The title page farther sets forth, that the materials for this work are already provided, and that it is carried on under the direction, and at the expence, of the Electoral Academy at Munich in Bavaria.

The author begins, by saying, that as it fell to his lot, to inform the public, that the edition of this most useful work, which was promised last year, was actually begun; but he could not prevail on himself to conform to the plain method commonly used on these occasions; thinking it would be more acceptable to the public, if he prefixed something of a new and singular nature to the proposals; to which purpose, nothing could be better adapted, as it seemed to him, than coloured figures, and descriptions of some remarkable Fungi, which had lately fallen in his way.

These were selected from a number of others, and, according to him, serve to illustrate and confirm an hypothesis he had adopted, and by which the existence of seeds, and consequently the propagation of the Fungi, are rendered doubtful.

The Fungi, which he has given figures of, and which he uses to confirm his opinion, are certainly very irregular, and perhaps not easy to be accounted for. In the three first of them, more than one Fungus grows from one common base, or stem; and what seems extraordinary to the author is, that part of the base of one of the Fungi does not touch the ground, but rests on the pileus, or cap of the other, and consequently cannot receive from the ground what is necessary for its rise, evolution, and nourishment. I must own, I do not see the force of this argument; for why may not one common stem, the bottom of which is fixed in the ground, give nourishment to each of the Fungi, though part of the stem of one rests upon the pileus of the other? Does not common experience prove, that nourishment can be conveyed through imperfect branches, even when such parts as would be judged, at first sight, to be necessary to convey the nutritive pieces are wanting? This is the case of trees, when all the bark is stripped off quite round a branch, and yet that branch shall bear flowers and fruit, in great quantity.

The fourth figure exhibits two Fungi, out of the pileus of which grows another complete Fungus, with stem, pileus, and lamellæ, of the same kind with the lower one, in every respect. However extraordinary this may be, yet it seems by no means to

prove

prove his hypothesis, or even suggest any reason for a new one, about the propagation of the Fungi; for why may not the cap of the Fungus afford as proper a bed for a seed, that happens to be lodged there, as the earth itself? We know that a birch tree has often been found growing out of the head of an oak, yet no one suspects from thence, that the birch is propagated without seed. Our author, indeed, seems to be sensible himself of the insufficiency of his arguments, hitherto made use of, to prove his new hypothesis, and suspects, he says, had he nothing more to produce in its favour, people might be apt to make objections; but luckily he has two other Fungi, that will serve his purpose better, which are represented by figure the fifth and last. In these the edges of the pileus of one Fungus adheres only to the upper surface of the pileus of another, and receives thence all its nourishment. Now, though it may be difficult to account for this strange position, yet, I think, the consequence our author draws from it does not follow, viz. that Fungi differ from other plants, as to propagation, and in some other respects. As to propagation, the same answer will serve, that was made use of above; and what farther particulars, in this instance, deserve notice, will be considered, when I come to my observations on the corollaries he draws from all the Fungi represented in his book.

The corollaries are as follow:

Corol. 1st, That the mode of rise, evolution, increment, and propagation, of Fungi, must be of a peculiar kind, and totally different from that which prevails in other kinds of plants.

§ § § 2

Corol.

Corol. 2d, That what from the analogy of the other plants is called the seed, of the Fungi cannot properly be called seed.

Corol. 3d, That there must be such a similarity in all the parts of the Fungi, that it is indifferent whether any part be placed above or below, whether it communicates or receives nourishment.

Lastly, That every Fungus, according to his hypothesis, is contained in an entire and perfect state from the beginning, in every egg, or, as it is called, its seed, and wants nothing but evolution, to imbibe the necessary juices.

These are the corollaries our author draws; and, for a farther confirmation of his doctrine, refers to a treatise expressly written on this subject, in which, he says, he has made use of such strong arguments, that it would be quite needless to add any thing more in this place. Had I an opportunity of perusing this treatise, it is possible I might find reason to agree with him; but his arguments must be quite of another nature, than what appears here, to make me think these plants exempt from the common laws of vegetables.

For, as to the supposed difference in regard to rise, evolution, increment, and propagation, which is his first corollary, it has been considered already in part, and will be more fully considered, when I come to his third corollary.

As to the second, viz. That what, from analogy, is called the seed, of the Fungi cannot properly be called seed. I must own, I cannot see the least foundation for any distinction between the seeds and eggs of plants, the latter of which terms, he thinks, ought

to be used, when we speak of the Fungi: for those terms are perfectly analogous, by the confession of all the nicest observers of nature; and what is called the egg in animals, goes under the name of seed in vegetables. Thus Linnæus says, *Philosophia Botanica*, p. 88. every living thing comes from an egg; consequently, all vegetables, whose seeds appear to be eggs from their final cause, which is to produce an offspring. He then cites a passage from our Harvey, to the same purpose. Our author seems to have been led into this confusion of ideas, by the improper use of the word semen, or seed, which is applied to the impregnating juice in animals, and to the parts which contain the embryo in vegetables, which are by no means analogous: for the impregnating dust in vegetables, answers to the impregnating juice in animals, as it has a similar use; and the eggs in animals answer to what we call seeds in plants.

When our author asserts, in the third corollary, that there must be such a similarity in all the parts of the Fungi, that it is indifferent whether any part be placed above or below, whether it communicates or receives nourishment, I suppose he draws this corollary from the fifth and sixth Fungus; for in those, the upper Fungus adheres only to the edge of the cap, or pileus, of the upper surface of the cap of the lower Fungus. The answer to this case, which was before omitted, shall now be made; nor is it at all difficult, for it appears, by Dr. Hales's vegetable Statics, experiment the 41, fig. 24. that a tree inarched between two other trees, though its root be cut off, or dug out of the ground, will continue to grow; and that many trees will grow in an inverted state. In
what

what respect, then, do Fungi differ from all other plants, as to the similarity in all the parts, &c.?

Lastly, when our author asserts, That every Fungus is contained in an entire and perfect state from the beginning, in the egg, or, as it is called, the seed, and wants nothing but evolution, in order to imbibe the necessary juices; when our author asserts this, he asserts nothing but what will be readily granted by every one, who has read the observations made by modern philosophers, on this part of nature, and the only difference between him and others is, that he confines himself to one order of plants, what they imagine, from good reason, to be the case of all; and this seems likewise to be the case throughout the animal creation, with this difference only, that, in some animals, some parts fall off entirely, after a certain time, and a new form ensues; yet even here, all the forms preceding the last may, and perhaps ought, as has been observed by Linnæus, to be looked upon as embryo states.

Upon the whole, I think our author seems inclined to invent a new hypothesis, from a few insufficient data, rather than to be forced into it by any leading phenomena, which ought to be very strong and convincing, to make us give up an analogy, that is confined within such moderate bounds. However, this ought not to prejudice us in relation to the latter part of this work; on the contrary, it ought to give us a favourable opinion of him, as it shews his zeal and application to this part of natural history. A man may be an excellent and useful observer, and yet be a very indifferent natural philosopher.

I come

I come now to the second part, which contains the proposals, and with the greater pleasure, as, at the same time that it affords no opportunity for criticism, it gives us hopes of seeing a very useful work, on one of the most obscure parts of botany.

The author observes, that the Electoral Academy at Munich, from its first institution, determined to turn their thoughts particularly to this part of natural history, which, hitherto, has been but indifferently cultivated; and, in consequence of this determination, the present method proposed to them was approved of. He adds, that the year before last, viz. 1760, though the drought was very great, they not only had an accession of above an hundred Fungi, but that plates of them were entirely finished, both as to engraving and colouring, and fit to be published. The circumstances and method of proceeding in this work, are as follow, and will, as the author assures the public, be strictly and religiously observed.

§ 1. They will begin by publishing the different species of Fungi, engraved and coloured according to the specimen in these proposals; with which the public will have reason to be satisfied. While these are publishing, they will be looking out after other Fungi, that may grow in Bavaria.

§ 2. These plates, when completed, will make a separate volume, intituled, *Jacobi Christiani Schaeffer Fungorum Bavariae, potissimum qui circa Ratisbonam nascuntur, icones, auspiciis et impensis Academiae Electoralis Bavariae Monacensis accurate delineatae, et publici juris factae*. This volume may be useful, without the other volumes, of which hereafter.

§ 3. There will be no plates of the Fungi, but such as have been examined from the first growth, and, if possible, from the egg, or seed, as it is called.

§ 4. There will be at least the following primary figures of every kind of Fungi; viz. The Fungus before it is unfolded. 2. When it is half perfect, or half grown. 3. Its characteristic appearance. 4. Its dissection. Lastly, whenever it may be necessary, In its decaying state.

§ 5. Besides these primary figures, there will be added as many secondary ones, as there are changes, which may render a Fungus dubious; and the author foresees, that sometimes one species may require two, three, or four plates.

§ 6. The plates will be all engraved by able artists, and well coloured.

§ 7. All the parts serving for propagation will be represented, both according to their natural appearances, and also magnified.

§ 8. Whenever it may be necessary, figures representing particular parts dissected will be made use of, both of the natural bigness, and as seen through the glass.

§ 9. In all the names and division of the genera, Linnæus alone will be followed.

§ 10. To give a greater variety to the work, in its progress, sometimes the species of one genus will be published, sometimes of another; but yet in such a manner, that order will not be totally neglected.

§ 11. No order will be observed, either in the species or in the individuals. No specific names, or synonyms, will be given; instead of which, they will be numbered according to each genus, and a short

short explanation be put at the bottom of each plate, as in those annexed to this treatise.

§ 12. To the end that beginners in botany, the illiterate, and even the country people, may be able to know the genera of the Fungi, as far as is necessary for them, the author hopes, that, before next Easter, or certainly not long after, copper-plates, engraved and coloured, will be published, representing all the genera, in such a manner, that they may be easily known. These plates, along with descriptions, will make another separate volume, which will be intituled, *Ifagoge in Fungorum Bavariæ historiam*, &c.

§ 13. When all the Fungi of Bavaria are finished, it is proposed to go on with such foreign ones as can be procured.

§ 14. As soon as the collection of the Fungi of Bavaria shall be completed, a new and last volume will follow, containing accurate descriptions, explanations, synonyms, of authors, and whatever else may be thought necessary. This volume will be intituled, *Fungorum Bavariæ historia*.

§ 15. No payment is expected beforehand; but yet such as are willing to encourage this work, are desired to send their names to Ildephonfus Kennedy, secretary to the academy at Munich, or to the author, at Ratisbon, in letters post-paid, that the expences of this work, sufficiently great of themselves, may not be increased.

§ 16. This kind of subscription is judged necessary; because copies in Latin and German will be printed separately, and no more of either sort, than the number of purchasers.

§ 17. A certain number of plates will be published every month, not fewer than six, nor more than twelve.

§ 18. For each parcel of plates, a certain price will be fixed, according to the number, each plate at the rate of ten creutzers; so that six plates will sell for a florin of the Rhine, according to the value it shall go at, when the plates are published; which price, though by no mean great, yet, it is to be hoped, that, after the sale of some parcels, the rest may be sold still cheaper.

N. B. The florin, here mentioned, is worth about two shillings English; and therefore, each plate will sell for about four pence.

There is no room for suspicion, that this work will not be completed, as too often happens in this way of publishing by parts: for, as far as human foresight can go, every thing is so prepared and ordered, that there can be no reasonable doubt that the work will be continued, and finished.

Lastly, As the intention of this work, says the author, is to facilitate the knowledge of the genera and species of Fungi, as much as possible; that we may be better instructed by persons skilful in this affair; by what name they judge it is called by authors not now living; by what name it is vulgarly known in their own country; and what use is made of it amongst their countrymen, and in what manner.

For these ends, says our author, the Electoral Academy enjoined me to apply to academies, literary societies, and men of learning, either skilful in natural history, or promoters of it, in other countries, desiring, that they will be pleased to communicate any observations

vations relating to these questions to the said academy ; which, as it will be highly acceptable to it, will be gratefully acknowledged, whenever occasion offers.

Thus far the author, in relation to his proposals, which, as far as can be judged by the plan and specimen, seem to deserve the encouragement of the curious.

Every one, who is conversant in botany, knows how obscure and imperfect this part of it still remains, after all that has been done upon the subject. Micheli and Dillenius were the first botanists that examined this order of plants, with any degree of accuracy ; and though their observations are very considerable, and have been of great service to preceding botanists, yet Linnæus, who mentions them with applause, says, *Philosophia Botanica*, p. 241. that the order of Fungi, to the reproach of botany, still remains a chaos, as we are ignorant what is a species, and what a variety.

Since the afore-mentioned authors, Gleditschius, who wrote a tract on the same subject, which is commended, expresses himself also to the same purpose : for, speaking of Dillenius, in the preface, p. 5. he says, that his genera are not only not well determined, but are even constructed in such a manner, as to contradict the natural characters ; and as to Micheli, that though he first determined the seeds of the Fungi, yet his genera are too artificial ; and therefore, he himself follows the method of Linnæus.

Gleditschius seems to have taken great pains about this subject ; but candidly owns, that, after all he had been able to do, in order to distinguish species from varieties, by collecting all the Fungi he could find, disposing and describing them according to the

degree of similitude, yet he found himself often at a loss, and unable absolutely to determine which side to take.

The book of Gleditschius was published in the year 1753, and is, I believe, the latest writer who has done much on this subject, except, perhaps, Scopoli, in his *Flora Carneolica*, published anno 1760; who differs from all the preceding botanists, in relation to species and varieties; and though his work has great merit, both in relation to this and other orders of plants, especially the *Cryptogamiæ*, yet there still remains much to be done, as, I believe, every skilful reader will easily allow.

From all that has been observed, I would draw a few conclusions in favour of the proposals in question.

First, then, The uncertainty of authors on this branch of botany, shews, that it requires a still farther examination, than has hitherto been made.

2dly, That though, in general, since the writings of Linnæus, figures have been, in a great measure, laid aside, yet in this, and some other obscure parts of botany, they may be employed to good purpose.

3dly, That the curious in botany ought to look on themselves as particularly obliged to those, who are inclined to labour and make researches in the obscure, and, according to the vulgar opinion, contemptible parts of nature, especially this order of plants, some of which are used for the table, and not a few of them are of a poisonous nature, so that a mistake may, and has, perhaps, sometimes proved of fatal consequence.